

1.5 | SPLIT

DART AEROSPACE LTD		Work Order:	21829 B
Description: Float Assembly		Part Number:	D3218-041
Dwg: D3218 Rev. A D3218-041 replaces Helitech P/N: 358-008-001		Qty:	6 12
		Page 1 of 1	

Step	Location	Procedure	By	Date	Qty
1	DC	Issue Traveler	<i>PH</i>	04.11.02	12
2	PG	Order bags in multiples of 3 Issue P/O: <u>7009096</u> Supplier: Tulmar Safety Systems D3218-041 Float Assembly per Dwg D3218 Serial No.: BXXXXX-01, BXXXXX-02, etc. Copy of inspection paperwork is required with each Float Assembly			
3	RG	Receive and Inspect for transit damage Ensure inspection paperwork is provided with each Float Assembly		u 04.11.03	12
4	QC5	Review vendor paperwork for completeness - Ensure all pressure tests passed - Ensure all dimensions within tolerance - Ensure Dart inspection performed - Ensure s/n printed on bag matches paperwork/Dart W/O Visually inspect bag for defects - No de-lamination or puckering of seams - Girt attachment OK - No holes through stitching - No excess glue - Valves installed in proper locations		<i>PH</i> 05.01.13	6
5	ST	Re-package and Stock in Kwik Float cell	<i>CD</i>	05/01/17	6
6	AC	Cost / part <u>2278.24</u>		5/20/18	6
7	DC	Close W/O <u>2277.10</u> Inspect Level 21	<i>PH</i>	05.01.24	6

Rev	Date	Change	Revised By	Approved
A	03.11.14	New issue	KJ/DS	<i>PH</i>

RELEASED

03.11.19 *PH*



DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. A
DATE 03.10.06		TITLE FLOAT ASSEMBLY	
		SCALE NTS	
A	03.10.06	NEW ISSUE	

RELEASED

03.12.05

D3218-041 FLOAT ASSEMBLY, NOTES:

1) MATERIAL:

ITEM	DESCRIPTION	QTY
FABRIC	POLYURETHANE COATED, PENNEL 987-123 YELLOW	7.20 m
ADHESIVE	SEALREZ S-0345 A/B	2.50 L
WEBBING	LAGRAN #3003, 1" WHITE NYLON	0.31 m
THREAD	NYLON, TWISTED TYPE II, SIZE F, CLASS A, V-T-295, COLOR TAN, CSB 92, COLOR #53	5.00 yds
NYLON CORD	MIL-C-5040 TYPE III, COLOR NATURAL	1.60 m
LETTERING	COATES SCREEN C99 S170 BLACK, HIGH GLOSS	0.50 oz
INFLATION VALVE	MIRADA B-51016 / A-51265	2
PRESSURE RELIEF VALVE	MIRADA B-51019	2
TOPPING VALVE	MIRADA B-51209	2
FLANGE	MIRADA B-51014-N (4.25")	4
FLANGE	HALKEY ROBERTS 981001020 (3.5")	2

2) AFTER MANUFACTURE:

- (a) PRESSURE TEST EACH CHAMBER TO 4.36 PSI (30 kPa) FOR 5 MINS.
- (b) INFLATE TO RELIEF VALVE PRESSURE [MIN OF 3.00 PSI (20.6 kPa)].
RELIEF VALVE MUST OPEN AT 3.3-3.5 PSI AND MUST CLOSE AT NOT LESS THAN 3.00 PSI. BAG MUST MAINTAIN A MIN PRESSURE OF 1.6 PSI (11.0 kPa) FOR 24 HOURS.

3) FLOAT IDENTIFICATION LETTERING 0.313" (7.95mm) HIGH BLACK CAPITAL LETTERS STENCILED ON THE R/H SIDE OF THE FLOAT BAG AS FOLLOWS:

DART AEROSPACE LTD.
FLOAT ASSEMBLY
P/N D3218-041 S/N BXXXXX-XX
REPLACES HELITECH P/N 358-008-001

- 4) COATED SIDE OF FABRIC ON OUTSIDE OF BAG.
- 5) ALL DIMENSIONS ARE IN INCHES. CRITICAL DIMENSIONS (DENOTED BY 5) MUST BE OBTAINED AT 2 PSI.
- 6) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.

SHOP COPY

RETURN TO

ENGINEERING

UNCONTROLLED CO

SUBJECT TO ENDMD
WITHOUT NOTICE

WORK ORDER

NO. 21829

PACKING SLIP

TULMAR

Tulmar Safety Systems Inc.

1123 Cameron Street
Hawkesbury, ON K6A 2B8 CA
Tel: 613-632-1282
Fax: 613-632-2030
www.tulmar.com
email: info@tulmar.com

COPY

Packing Slip No

18096

Ship Date

11-Jan-05

Bill No:

Dart Aerospace
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7. Canada

Ship To:

Dart Aerospace
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7. Canada

Order number	Sales order date	Account number	Account manager	
14700	5-Nov-04	CDART100	Barney Bangs	
PO number		Ship Via	PPD/COL	
2007076		Pick-Up		
Item No.	Quantity ordered	UOM	Otv Shipped/Returned	Quantity on back order
R92-10174	6	EA	6	
8927				
Float Assembly, individual bag/P/N: D3218-041				
Drawing No: D3218				
P/N: BHA/RDA/358-11-01,Rev NR				
P/N .D3218-041				
Revision A				
Must use Sealrez S-0345A/B adhesive.				
S/N: B21829-01 to -12				
Lot No: B21829-00000007	Qty: 1	Lot No: B21829-00000008	Qty: 1	Lot No: B21829-00000009
Lot No: B21829-00000010	Qty: 1	Lot No: B21829-00000011	Qty: 1	Lot No: B21829-00000012

Phil mean

TULMAR

Release Note

TULMAR SAFETY SYSTEMS INC.

1123 Cameron Street,
Hawkesbury, Ont. Canada K6A 2B8
Tel: (613)632-1282
Fax: (613)632-2030

Revision 05/08/01 Form 458

R/N No. R92-10174

R92-10174

Date: 1/11/2005

1/11/2005

Sold To:

Shipped To:

DART AEROSPACE LTD

1270 Aberdeen Street

Hawkesbury, ON K6A 1K7

I hereby certify that the items listed hereon have been inspected, tested, and conform to all specifications and requirements detailed in the contract or purchase order.

Saliente

1/11/2005

Authorized Inspector

Date

#2

Description: Float Bag Assembly

-Items are Manufactured IAW Process Control Specification No. 001, 002, 003, 004, 005, 006, and are to be 100% inspected I.A.W. P.I.P. 001

W/O: 3664 TSS P/N: 8927 Qty.: 12 Customer P/N: D3218-041 Dwg. No.: D3218 Rev.: A Date: _____

Cutting IAW PCS 003		Marking IAW PCS 004		Bonding IAW PCS 002		Silkscreen	
Operator No.	Date	Operator No.	Date	Operator No.	Date	Operator No.	Date
<u>85</u>	<u>Nov. 30/04</u>	<u>73</u>	<u>Dec 01/04</u>			<u>73</u>	<u>Nov. 15/04</u>
				(Documented below)		<u>73</u>	<u>Dec 15/04</u>

* Note: PCS 006, there shall be a total of 2 samples submitted for the Testing of the Adhesive (Peel and Shear Test), at start and end of every production day, record on sheet 3/3

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. S.	Date
1- a) Attach Panel A (uneven edge) to larger edge of Panel B, centered on a 2" inner tape (butt joint) $\pm 1/8"$	<u>37</u>		<u>1</u>	—	—	<u>1</u>	<u>11</u>	<u>Dec 2/04</u>
b) Attach (6) Valve Flanges on Panel A: 2-Relief, 2-Inlet & 2- Topping Up	<u>37</u> <u>1 dec .04</u>	<u>7104-05</u>	<u>6</u>	—	—	<u>6</u>	<u>15</u>	<u>Dec 1/04</u>
c) Attach (6) Doublers on above Flanges	<u>37</u> <u>1 dec .04</u>		<u>6</u>	—	—	<u>6</u>	<u>15</u>	<u>Dec 1/04</u>
2- a) Attach Panel C to Straight edge of Panel A, centered on a 2" inner Tape (butt joint) $\pm 1/8"$	<u>37</u> <u>2 dec .04</u>		<u>1</u>	—	—	<u>1</u>	<u>11</u>	<u>Dec 2/04</u>
3- a) Att. Panel D to Panel B (shorter edge) with 2" inner Tape	<u>37</u> <u>2 dec .04</u>		<u>1</u>	—	—	<u>1</u>	<u>15</u>	<u>Dec 2/04</u>
4- a) Baffle Ass'y. with 2" Tape $\pm 1/8"$	<u>117</u> <u>2 dec .04</u>		<u>1</u>	—	—	<u>1</u>	<u>11</u>	<u>Dec 2/04</u>
5- a) Attach Baffle Ass'y. to Bag (in 3 stages, minimum)	<u>117</u> <u>3 dec 04</u>		<u>1</u>	—	—	<u>1</u>	<u>15</u>	<u>Dec 3/04</u>
6- a) Perform Baffle Test on Chamber # 1 after a 3 day Cure Time	<u>12</u> <u>Dec 9 2004</u>					<u>0</u>		
7- a) Closure of 1" Main Seam (overlap) $\pm 1/8"$ b) Attach ID Patch (ref. CAR 04-003)	<u>37</u> <u>13 dec .04</u> <u>117</u> <u>22 dec 2004</u>	<u>7104-26</u> <u>Bonding</u>	<u>1</u> <u>1</u>	—	—	<u>1</u>	<u>15</u>	<u>Dec 13/04</u>
8- a) Perform Baffle Test on Chamber # 2 after a 3 day Cure Time	<u>12</u> <u>Dec 16 2004</u>		<u>1</u>	—	—	<u>1</u>	<u>15</u>	<u>Dec 23/04</u>
9- a) Attach 1" wide Finishing Tape on all Butt Joints & Main Seam, Centered $\pm 1/8"$ b) Att. Inspected Girt Ass'y. (Form 193-8927, Girt) to Bag c) Attach 5" split patch on each end (x 4)	<u>117</u> <u>Dec 24 2004</u> <u>117</u> <u>24 dec 2004</u> <u>117</u> <u>24 dec 2004</u>	<u>Testing</u> (see sheet 2) <u>Bonding</u>	<u>1</u> <u>1</u> <u>1</u>	—	—	<u>1</u>	<u>11</u>	<u>Dec 23/04</u>
						<u>1</u>	<u>15</u>	<u>Dec 23/04</u>

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
10- a) Final Test b) Inspector to Stamp on ID Patch: Serial No.: B 21829-07 & Inspection Stamp beside the S/N	12 Jan 5/05	Testing (see sheet 3)	1	—	—	1	A	Jan 5/05
	12 Jan 5/05		1	—	—	1	A	Jan 5/05

Upon completion of the (final) leakage test, the ID Patch shall be stamped with 5/16" high lettering and black ink: serial number (7 digits), provided by DART (refer to W/O). * Verify the integrity of the Valves (Threads/gaskets).

Test Conditions – All tests shall be performed in the following conditions:

a) Atmospheric pressure between 28 to 32 inches of mercury (94.8 kPa to 108.4 kPa) b) Temperature shall be $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ c) Relative humidity shall be 80 % or less

Baffle Test:

Over Pressure: Using socket tool and torque wrench s/n 0801300327, tight all (3) Valves to 40 inch pound, the JIC adaptor s/n 44537 between 15 to 20 foot pounds. Block the Relief valve with flagged pin. Inflate Chamber to 4.36 PSI (30 kPa) with clean dry air source. Using leak detector or non detergent soap, check all the valves and seams to detect leakage.

Leakage shall be cause for rejection (soap during testing period). Fuzz is not considered a failure. After 5 minutes, there shall be no evidence of distortion or damage to the seams.

Inflation Test: Lower Chamber to 3.00 psi, re-adjust after 45 minutes. After 1 hour, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period. The corrected pressure reading shall not be less than 2.94PSI in order for the Test to be acceptable.

- 0.054 PSI for each 1°C of temperature increase
- + 0.054 PSI for each 1°C of temperature decrease
- + 0.049 PSI for each 0.1 inch of barometric increase
- 0.049 PSI for each 0.1 inch of barometric decrease

Chambers	Pressure	5 Min. Over P. & Soap Test	45 Minute Stabilizing Period						1 Hour Test					138 humy
			Pass / Fail	Design Pressure	Time On	Time Off	Design Pressure	Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.	
Dec 9/04														
# 1 (see note 1)	4.36 PSI	Pass		3.00 PSI	8:00	8:45	3.00 PSI	9:00	10:00	3.00 PSI	22°	22°	30.03	30.05
Re-Test														
Dec 11/04/04 (Main Seam)	4.36 PSI	Pass		3.00 PSI	11:00	11:45	3.00 PSI	11:45	12:45	2.99 PSI	22°	23	29.87	29.84
Re-Test														

Note 1: Chamber # 1 requires Dart Aerospace Approval Signature: Chris Phinney Date: 04.12.10

Observations: OK

FULMAR

#2

Product Inspection Form # 193-8927(Tube & Final)

Rev. D Sheet 3/3

Final Test: Leakage / Relief Valves: The chambers are to be tested separately (one at a time). Through the Topping Up Valve, inflate chamber to approximately 2.00 PSI, soap the (3) valves to detect leakage. Then slowly inflate chamber until pressure relief valve vents. Use leak detector or non detergent soap to detect the opening and the closing. A hissing sound may also denote that the valve has started to open. Record the opening/closing time and pressure. The opening pressure shall be between 3.3 – 3.5 PSI and the closing pressure shall not be less than 3.00 PSI, in order for the test to be acceptable. After 24 hours, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period (see sheet 2). The corrected pressure reading shall not be less than 1.60 PSI in order for the Test to be acceptable.

Upon completion of the Final Test, inflate both chambers equally to approx. 2.00 PSI and perform Dimensional Verification below. Perform additional inspection of the tapes and girt assembly.

Pressure Relief Valve Test	PRV Serial Numbers	Opening		Closing		Pass / Fail
		Time ON	Pressure	Time	Close	
Chamber # 1	33201	11:30	3.45 PSI	11:35	3.19 PSI	Pass
Chamber # 2 (Main Seam)	33205	11:55	3.33 PSI	12:00	3.06 PSI	Pass

Chambers	Design (closing) Pressure as per above	24 Hour Leakage Test								Pass / Fail
		Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.	Final Read'g		
Jan 3/05									heavy : 12 %	
# 1	3.19 PSI	11:35	11:35	2.41 PSI	24 ^c 24 ^c	30.09 30.10	+0.004	2.42 PSI	Pass	
Re-Test										
Jan 5/05										
(Main Seam)	3.06 PSI	12:00	12:00	2.03 PSI	21 ^c 23	30.09 30.18	+0.108 +0.044	1.96 PSI	Pass	
Re-Test										

Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail
3.5	± 0.100 *	3.25	Pass	47.0	± 0.5	46 3/4	Pass	24.75	± 0.5	25	Pass
7.3	± 0.100 *	7.4	Pass					31.0	± 0.5	31 1/16	Pass

* = IAW QSI 018, rev. A dated 03-05-29

4

Submission of Adhesive Testing:

		Subm. Date / am-pm	Pass/Fail						
Peel	24 hour	Dec 1/04	Pass	Dec 1/04	Pass	Dec 3/04	Pass	Dec 13/04	Pass
	7 day	Dec 1/04	Pass	Dec 1/04	Pass	Dec 3/04	Pass	Dec 13/04	Pass
Shear	24 hour	Dec 1/04	Pass	Dec 1/04	Pass	Dec 3/04	Pass	Dec 13/04	Pass
	7 day	Dec 1/04	Pass	Dec 1/04	Pass	Dec 3/04	Pass	Dec 13/04	Pass

#7

Description: Float Bag Assembly

-Items are Manufactured IAW Process Control Specification No. 001, 002, 003, 004, 005, 006, and are to be 100% inspected I.A.W. P.I.P. 001

W/O: 3664 TSS P/N: 8927 Qty.: 1 Customer P/N: D3218-041 Dwg. No.: D3218 Rev.: A Date: _____

Cutting IAW PCS 003		Marking IAW PCS 004		Bonding IAW PCS 002		Silkscreen	
Operator No.	Date	Operator No.	Date	Operator No.	Date	Operator No.	Date
85	<u>Nov. 30/04</u>	73	<u>Dec 01/04</u>			73	<u>Nov. 15/04</u>
					(Documented below)	73	<u>Dec 15/04</u>

* Note: PCS 006, there shall be a total of 2 samples submitted for the Testing of the Adhesive (Peel and Shear Test), at start and end of every production day, record on sheet 3/3

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
1- a) Attach Panel A (uneven edge) to larger edge of Panel B, centered on a 2" inner tape (butt joint) \pm 1/8"	37 8 dec. 04	7104-26	1	-	-	1	11	Dec 9/04
b) Attach (6) Valve Flanges on Panel A: 2-Relief, 2-Inlet & 2- Topping Up	37 9/10		660	-6	-	660	11	Dec 9/04
c) Attach (6) Doublers on above Flanges	37 6/12/04	Bonding	6	-	-	6	11	Dec 7/04
2- a) Attach Panel C to Straight edge of Panel A, centered on a 2" inner Tape (butt joint) \pm 1/8"	37 9 dec. 04	7104-26	1	-	-	1	11	Dec 9/04
3- a) Att. Panel D to Panel B (shorter edge) with 2" inner Tape	37 9 dec. 04	7104-26	1	-	-	1	11	Dec 9/04
4- a) Baffle Ass'y. with 2" Tape \pm 1/8"	47 9 dec 04	Bonding	1	-	-	1	11	Dec 9/04
5- a) Attach Baffle Ass'y. to Bag (in 3 stages, minimum)	117 10 dec 04		1	-	-	1	11	Dec 10/04
6- a) Perform Baffle Test on Chamber # 1 after a 3 day Cure Time	12 12 dec 04	Testing (see sheet 2)	1	-	-	1	4	Dec 14/04
7- a) Closure of 1" Main Seam (overlap) \pm 1/8"	117 15 dec 04	Bonding	1	-	-	1	11	Dec 15/04
b) Attach ID Patch (ref. CAR 04-003)	117 22 dec 04		1	-	-	1	11	Dec 22/04
8- a) Perform Baffle Test on Chamber # 2 after a 3 day Cure Time	12 22 dec 04	Testing (see sheet 2)	1	-	-	1	4	Dec 21/04
9- a) Attach 1" wide Finishing Tape on all Butt Joints & Main Seam, Centered \pm 1/8"	117 22 dec 04	Bonding	1	-	-	1	11	Dec 22/04
b) Att. Inspected Girt Ass'y. (Form 193-8927, Girt) to Bag	117 22 dec 04		1	-	-	1	11	Dec 22/04
c) Attach 5" split patch on each end (x 4)	117 22 dec 04		1	-	-	1	11	Dec 22/04

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
10- a) Final Test b) Inspector to Stamp on ID Patch: Serial No.: B 21829-08 & Inspection Stamp beside the S/N	12 Jan 5/05 12 Jan 5/05	Testing (see sheet 3)	1	—	—	1	4	Jan 5/2005
			1	—	—	1	4	Jan 5/2005

Upon completion of the (final) leakage test, the ID Patch shall be stamped with 5/16" high lettering and black ink: serial number (7 digits), provided by DART (refer to W/O). * Verify the integrity of the Valves (Threads/gaskets).

Test Conditions – All tests shall be performed in the following conditions:

a) Atmospheric pressure between 28 to 32 inches of mercury (94.8 kPa to 108.4 kPa) b) Temperature shall be $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ c) Relative humidity shall be 80 % or less

Baffle Test:

Over Pressure: Using socket tool and torque wrench s/n 0801300327, tight all (3) Valves to 40 inch pound, the JIC adaptor s/n 44537 between 15 to 20 foot pounds. Block the Relief valve with flagged pin. Inflate Chamber to 4.36 PSI (30 kPa) with clean dry air source. Using leak detector or non detergent soap, check all the valves and seams to detect leakage. Leakage shall be cause for rejection (soap during testing period). Fuzz is not considered a failure. After 5 minutes, there shall be no evidence of distortion or damage to the seams.

Inflation Test: Lower Chamber to 3.00 psi, re-adjust after 45 minutes. After 1 hour, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period. The corrected pressure reading shall not be less than 2.94PSI in order for the Test to be acceptable.

- 0.054 PSI for each 1°C of temperature increase
- + 0.054 PSI for each 1°C of temperature decrease
- + 0.049 PSI for each 0.1 inch of barometric increase
- 0.049 PSI for each 0.1 inch of barometric decrease

Chambers	Pressure	5 Min. Over P. & Soap Test	45 Minute Stabilizing Period						1 Hour Test						Final Read'g	Pass / Fail
			Pass / Fail	Design Pressure	Time On	Time Off	Design Pressure	Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.			
Dec 17/04	4.36 PSI (see note 1)	Pass	Pass	3.00 PSI	8:30	9:15	3.00 PSI	9:15	10:15	3.031 PSI	23° 23°	29.92 29.91	—	2.99 R1	Pass	
Re-Test																
Dec 21/04 (Main Seam)	4.36 PSI	Pass	Pass	3.00 PSI	1:45	2:30	3.00 PSI	2:30	3:30	3.00 PSI	23° 23°	29.80 29.77	—	2.95	Pass	
Re-Test																

Note 1: Chamber # 1 requires Dart Aerospace Approval Signature: Chris Provencher Date: 04.12.15

Observations: OK

Final Test: Leakage / Relief Valves: The chambers are to be tested separately (one at a time). Through the Topping Up Valve, inflate chamber to approximately 2.00 PSI, soap the (3) valves to detect leakage. Then slowly inflate chamber until pressure relief valve vents. Use leak detector or non detergent soap to detect the opening and the closing. A hissing sound may also denote that the valve has started to open. Record the opening/closing time and pressure. The opening pressure shall be between 3.3 – 3.5 PSI and the closing pressure shall not be less than 3.00 PSI, in order for the test to be acceptable. After 24 hours, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period (see sheet 2).

The corrected pressure reading shall not be less than 1.60 PSI in order for the Test to be acceptable.

Upon completion of the Final Test, inflate both chambers equally to approx. 2.00 PSI and perform Dimensional Verification below. Perform additional inspection of the tapes and girt assembly.

Pressure Relief Valve Test	PRV Serial Numbers	Opening		Closing		Pass / Fail
		Time ON	Pressure	Time	Close	
Chamber # 1	32868	11:50	3.40 PSI	11:55	3.19 PSI	Pass
Chamber # 2 (Main Seam)	31671	12:55	3.49 PSI	1:00	3.03 PSI	Pass

Jan 3/05 Chambers	Design (closing) Pressure as per above	24 Hour Leakage Test								Pass / Fail
		Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.	Final Read'g		
# 1	3.19 PSI	11:55	11:55	2.56 PSI	24° 24°	30.09 30.09	—	2.56 PSI	Pass	hurry 12 %
Re-Test										
Jan 4/05 (Main Seam)	3.03 PSI	1:00	1:00	2.15 PSI	21° 23	30.08 30.15	0.108 +0.034	2.07 PSI	Pass	
Re-Test										

Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail
3.5	± 0.100 *	3.5	Pass	47.0	± 0.5	46 3/4	Pass	24.75	± 0.5	25 1/4	Pass
7.3	± 0.100 *	7.3	Pass					31.0	± 0.5	31 1/8	Pass

* = IAW QSI 018, rev. A dated 03-05-29

Submission of Adhesive Testing:

	Subm. Date / am-pm	Pass/Fail						
Peel	24 hour	Dec 2/04	Failed	Dec 9/04	Pass	Dec 22/04	Pass	
	7 day	Dec 2/04	Failed	Dec 9/04	Pass	Dec 22/04	Pass	
Shear	24 hour	Dec 2/04	Failed	Dec 9/04	Pass	Dec 22/04	Pass	
	7 day	Dec 2/04	Failed	Dec 19/04	Pass	Dec 22/04	Pass	

Note 1: Bag # 7 all work was taken apart & re-worked

#9

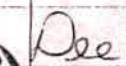
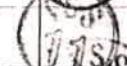
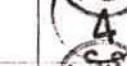
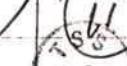
Description: Float Bag Assembly

-Items are Manufactured IAW Process Control Specification No. 001, 002, 003, 004, 005, 006, and are to be 100% inspected I.A.W. P.I.P. 001

W/O: 3664 TSS P/N: 8927 Qty.: 12 Customer P/N: D3218-041 Dwg. No.: D3218 Rev.: A Date: _____

Cutting IAW PCS 003		Marking IAW PCS 004		Bonding IAW PCS 002		Silkscreen	
Operator No.	Date	Operator No.	Date	Operator No.	Date	Operator No.	Date
<u>85</u>	<u>Nov. 30/04</u>	<u>73</u>	<u>Dec 01/04</u>			<u>73</u>	<u>Nov. 15/04</u>
				(Documented below)		<u>73</u>	<u>Dec 15/04</u>

* Note: PCS 006, there shall be a total of 2 samples submitted for the Testing of the Adhesive (Peel and Shear Test), at start and end of every production day, record on sheet 3/3

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
1- a) Attach Panel A (uneven edge) to larger edge of Panel B, centered on a 2" inner tape (butt joint) $\pm 1/8"$ b) Attach (6) Valve Flanges on Panel A: 2-Relief, 2-Inlet & 2- Topping Up c) Attach (6) Doublers on above Flanges	<u>37 7 dec. 04</u>	<u>7104-26</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	   	<u>Dec 8/04</u>
	<u>110</u> <u>2/10/04</u>	<u>Bonding</u>	<u>6</u>	<u>-</u>	<u>-</u>	<u>6</u>	   	<u>Dec 10/04</u>
2- a) Attach Panel C to Straight edge of Panel A, centered on a 2" inner Tape (butt joint) $\pm 1/8"$	<u>37</u> <u>8 dec. 04</u>	<u>7104-26</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	   	<u>Dec 8/04</u>
3- a) Att. Panel D to Panel B (shorter edge) with 2" inner Tape	<u>37</u> <u>8 dec. 04</u>	<u>7104-26</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	   	<u>Dec 8/04</u>
4- a) Baffle Ass'y. with 2" Tape $\pm 1/8"$	<u>117</u> <u>9 dec 04</u>	<u>Bonding</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	   	<u>Dec 9/04</u>
5- a) Attach Baffle Ass'y. to Bag (in 3 stages, minimum)	<u>117</u> <u>9 dec 04</u>	<u>Bonding</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	   	<u>Dec 9/04</u>
6- a) Perform Baffle Test on Chamber # 1 after a 3 day Cure Time	<u>12</u> <u>13 dec 2004</u>	<u>Testing</u> (see sheet 2)	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	 	<u>Dec 13/04</u>
7- a) Closure of 1" Main Seam (overlap) $\pm 1/8"$ b) Attach ID Patch (ref. CAR 04-003)	<u>117</u> <u>15 dec 04</u>	<u>Bonding</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	 	<u>Dec 15/04</u>
8- a) Perform Baffle Test on Chamber # 2 after a 3 day Cure Time	<u>12</u> <u>20 dec 04</u>	<u>Testing</u> (see sheet 2)	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	 	<u>Dec 20/04</u>
9- a) Attach 1" wide Finishing Tape on all Butt Joints & Main Seam, Centered $\pm 1/8"$ b) Att. Inspected Girt Ass'y. (Form 193-8927, Girt) to Bag c) Attach 5" split patch on each end (x 4)	<u>37</u> <u>21 dec 04</u>	<u>Bonding</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	 	<u>Dec 22/04</u>
	<u>37</u> <u>22 dec 04</u>	<u>Bonding</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	 	<u>Dec 23/04</u>
	<u>37</u> <u>22 dec 04</u>	<u>Bonding</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	 	<u>Dec 23/04</u>
	<u>37</u> <u>22 dec 04</u>	<u>Bonding</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	 	<u>Dec 23/04</u>

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
10- a) Final Test b) Inspector to Stamp on ID Patch: Serial No.: B 21829-09 & Inspection Stamp beside the S/N	12 Jan 05 12 Jan 05	Testing (see sheet 3)	1	—	—	1	1/584	Jan 5/2005 Jan 5/2005

Upon completion of the (final) leakage test, the ID Patch shall be stamped with 5/16" high lettering and black ink: serial number (7 digits), provided by DART (refer to W/O). Verify the integrity of the Valves (Threads/gaskets).

Test Conditions – All tests shall be performed in the following conditions:

a) Atmospheric pressure between 28 to 32 inches of mercury (94.8 kPa to 108.4 kPa) b) Temperature shall be $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ c) Relative humidity shall be 80 % or less

Baffle Test:

Over Pressure: Using socket tool and torque wrench s/n 0801300327, tight all (3) Valves to 40 inch pound, the JIC adaptor s/n 44537 between 15 to 20 foot pounds. Block the Relief valve with flagged pin. Inflate Chamber to 4.36 PSI (30 kPa) with clean dry air source. Using leak detector or non detergent soap, check all the valves and seams to detect leakage. Leakage shall be cause for rejection (soap during testing period). Fuzz is not considered a failure. After 5 minutes, there shall be no evidence of distortion or damage to the seams.

Inflation Test: Lower Chamber to 3.00 psi, re-adjust after 45 minutes. After 1 hour, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period. The corrected pressure reading shall not be less than 2.94PSI in order for the Test to be acceptable.

- 0.054 PSI for each 1°C of temperature increase
- + 0.054 PSI for each 1°C of temperature decrease
- + 0.049 PSI for each 0.1 inch of barometric increase
- 0.049 PSI for each 0.1 inch of barometric decrease

Chambers	Pressure	5 Min Over P. & Soap Test	45 Minute Stabilizing Period				1 Hour Test						Final Read'g	Pass / Fail	
			Pass / Fail	Design Pressure	Time On	Time Off	Design Pressure	Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.		
Dec 13/04	4.36 PSI	Pass	Pass	3.00 PSI	12:15	1:00	3.00 PSI	1:00	2:00	2.99 PSI	23° 23°	29.29 29.31	+0.009	2.99 PSI	Pass
Re-Test															
Dec 12/05/04 (Main Seams)	4.36 PSI	Pass	Pass	3.00 PSI	1:00	1:45	3.00 PSI	1:45	2:45	3.45 PSI	23° 23°	29.85 29.85	—	3.45 PSI	Pass
Re-Test															

Note 1: Chamber # 1 requires Dart Aerospace Approval Signature: Chris Danner Date: 04/12/15

Observations: OK

TULMAR #9

Product Inspection Form # 193-8927(Tube & Final)

Rev. D Sheet 3/3

Final Test: Leakage / Relief Valves: The chambers are to be tested separately (one at a time). Through the Topping Up Valve, inflate chamber to approximately 2.00 PSI, soap the (3) valves to detect leakage. Then slowly inflate chamber until pressure relief valve vents. Use leak detector or non detergent soap to detect the opening and the closing. A hissing sound may also denote that the valve has started to open. Record the opening/closing time and pressure. The opening pressure shall be between 3.3 – 3.5 PSI and the closing pressure shall not be less than 3.00 PSI, in order for the test to be acceptable. After 24 hours, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period (see sheet 2). The corrected pressure reading shall not be less than 1.60 PSI in order for the Test to be acceptable.

Upon completion of the Final Test, inflate both chambers equally to approx. 2.00 PSI and perform Dimensional Verification below. Perform additional inspection of the tapes and girt assembly.

Pressure Relief Valve Test	PRV Serial Numbers	Opening		Closing		Pass / Fail
		Time ON	Pressure	Time	Close	
Chamber # 1	32852	11:00	3.45 PSI	11:05	3.12 PSI	Pass
Chamber # 2 (Main Seam)	33192	10:10	3.47 PSI	12:15	3.17 PSI	Pass

Chambers	Design (closing) Pressure as per above	24 Hour Leakage Test								Final Read'g	Pass / Fail
		Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.				
Jan 3/05 # 1	3.12 PSI	11:05	11:05	2.73 PSI	24° 24°	30.08 30.12	—	+0.019	2.74 PSI	Pass	
Re-Test											
Jan 7/05 (Main Seam)	3.17 PSI	12:15	12:15	2.38 PSI	21 23	30.09 30.17	-0.108	+0.039	2.30 PSI	Pass	
Re-Test											

Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail
3.5	± 0.100 *	3.5	Pass	47.0	± 0.5	46 1/2	Pass	24.75	± 0.5	25 1/4	Pass
7.3	± 0.100 *	7.3	Pass					31.0	± 0.5	31	Pass

* = IAW QSI 018, rev. A dated 03-05-29

Submission of Adhesive Testing:

		Subm. Date / am-pm	Pass/Fail						
Peel	24 hour	Dec 2/04	Pass	Dec 4/04	Pass				
	7 day	Dec 2/04	Pass	Dec 7/04	Pass				
Shear	24 hour	Dec 2/04	Pass	Dec 7/04	Pass				
	7 day	Dec 2/04	Pass	Dec 7/04	Pass				

#4

Description: Float Bag Assembly

Items are Manufactured IAW Process Control Specification No. 001, 002, 003, 004, 005, 006, and are to be 100% inspected I.A.W. P.I.P. 001

W/O: 3664TSS P/N: 8927Qty.: 12 Customer P/N: D3218-041Dwg. No.: D3218Rev.: A

Date: _____

Cutting IAW PCS 003		Marking IAW PCS 004		Bonding IAW PCS 002		Silkscreen	
Operator No.	Date	Operator No.	Date	Operator No.	Date	Operator No.	Date
<u>85</u>	<u>Nov. 30/04</u>	<u>73</u>	<u>Dec 01/04</u>			<u>73</u>	<u>Nov. 15/04</u>

(Documented below)

73Dec 15/04

* Note: PCS 006, there shall be a total of 2 samples submitted for the Testing of the Adhesive (Peel and Shear Test), at start and end of every production day, record on sheet 3/3

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
1- a) Attach Panel A (uneven edge) to larger edge of Panel B, centered on a 2" inner tape (butt joint) \pm 1/8"	<u>379 dec. 04</u>	<u>Rejected due to Peel & Shear test failures.</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>1</u>	<u>SS 11</u>	<u>Dec 9/04</u>
b) Attach (6) Valve Flanges on Panel A: 2-Relief, 2-Inlet & 2-Topping Up	<u>110 6/12/04</u>	<u>Shear test failures.</u>	<u>60 6</u>	<u>0 6</u>	<u>—</u>	<u>60 6</u>	<u>SS 11</u>	<u>Dec 2/04</u>
c) Attach (6) Doublers on above Flanges	<u>#110 6/13/04</u>	<u>Bonding</u>	<u>60 6</u>	<u>0 6</u>	<u>—</u>	<u>60 6</u>	<u>SS 11</u>	<u>Dec 3/04</u>
2- a) Attach Panel C to Straight edge of Panel A, centered on a 2" inner Tape (butt joint) \pm 1/8"	<u>37 9 dec. 04</u>	<u>Re-inspected & Found Acceptable</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>1</u>	<u>SS 11</u>	<u>Dec 9/04</u>
3- a) Att. Panel D to Panel B (shorter edge) with 2" inner Tape	<u>37 9 dec. 04</u>	<u>Acceptable</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>1</u>	<u>SS 11</u>	<u>Dec 9/04</u>
4- a) Baffle Ass'y. with 2" Tape \pm 1/8"	<u>117 13 dec 04</u>	<u>Bonding</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>1</u>	<u>SS 11</u>	<u>Dec 2/04</u>
5- a) Attach Baffle Ass'y. to Bag (in 3 stages, minimum)	<u>117 13 dec 04</u>	<u>Bonding</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>1</u>	<u>SS 11</u>	<u>Dec 13/04</u>
6- a) Perform Baffle Test on Chamber # 1 after a 3 day Cure Time	<u>12</u>	<u>Testing (see sheet 2)</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>1</u>		<u>Dec 20/04</u>
7- a) Closure of 1" Main Seam (overlap) \pm 1/8"	<u>117 22 dec 04</u>	<u>Bonding</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>1</u>	<u>SS 11</u>	<u>Dec 22/04</u>
b) Attach ID Patch (ref. CAR 04-003)	<u>37 3 jan. 05</u>	<u>Testing (see sheet 2)</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>1</u>	<u>SS 11</u>	<u>Jan 5/05</u>
8- a) Perform Baffle Test on Chamber # 2 after a 3 day Cure Time	<u>3 jan. 05</u>	<u>Bonding</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>1</u>	<u>SS 11</u>	<u>Jan 3/05</u>
9- a) Attach 1" wide Finishing Tape on all Butt Joints & Main Seam, Centered \pm 1/8"	<u>37 4 jan. 05</u>	<u>Testing (see sheet 2)</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>1</u>	<u>SS 11</u>	<u>Jan 5/05</u>
b) Att. Inspected Girt Ass'y. (Form 193-8927, Girt) Bag	<u>37 4 jan. 05</u>	<u>Bonding</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>1</u>	<u>SS 11</u>	<u>Jan 5/05</u>
c) Attach 5" split patch on each end (x 4)	<u>37 4 jan. 05</u>	<u>Bonding</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>1</u>	<u>SS 11</u>	<u>Jan 5/05</u>

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
10- a) Final Test b) Inspector to Stamp on ID Patch: Serial No.: B 21829-11 & Inspection Stamp beside the S/N	12 Jan 10/05 12 Jan 10/05	Testing (see sheet 3)	1	—	—	1	4	Jan 10/05

Upon completion of the (final) leakage test, the ID Patch shall be stamped with 5/16" high lettering and black ink: serial number (7 digits), provided by DART (refer to W/O). * Verify the integrity of the Valves (Threads/gaskets).

Test Conditions – All tests shall be performed in the following conditions:

a) Atmospheric pressure between 28 to 32 inches of mercury (94.8 kPa to 108.4 kPa) b) Temperature shall be 20°C ± 5°C c) Relative humidity shall be 80 % or less

Baffle Test:

Over Pressure: Using socket tool and torque wrench s/n 0801300327, tight all (3) Valves to 40 inch pound, the JIC adaptor s/n 44537 between 15 to 20 foot pounds. Block the Relief valve with flagged pin. Inflate Chamber to 4.36 PSI (30 kPa) with clean dry air source. Using leak detector or non detergent soap, check all the valves and seams to detect leakage.

Leakage shall be cause for rejection (soap during testing period). Fuzz is not considered a failure. After 5 minutes, there shall be no evidence of distortion or damage to the seams.

Inflation Test: Lower Chamber to 3.00 psi, re-adjust after 45 minutes. After 1 hour, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period. The corrected pressure reading shall not be less than 2.94PSI in order for the Test to be acceptable.

- 0.054 PSI for each 1°C of temperature increase
- + 0.054 PSI for each 1°C of temperature decrease
- + 0.049 PSI for each 0.1 inch of barometric increase
- 0.049 PSI for each 0.1 inch of barometric decrease

Chambers	Pressure	5 Min. Over P. & Soap Test			45 Minute Stabilizing Period			11 Hour Test						Final Read'g	Pass / Fail
		Pass / Fail	Design Pressure	Time On	Time Off	Design Pressure	Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.			
# 1 see note 1)	4.36 PSI	Pass	3.00 PSI	8:50	9:35	3.00 PSI	9:35	10:35	3.0 PSI	23°	23°	—	2.99 PSI	Pass	
Re-Test															
# 2 (ain Seam)	4.36 PSI	Pass	3.00 PSI	9:00	9:45	3.00 PSI	9:50	10:50	3.0 PSI	24°	24°	—	3.0 PSI	Pass	
Re-Test															

Note 1: Chamber # 1 requires Dart Aerospace Approval Signature: Chris Provenza Date: 09/12/21

Observations: Small bubbles in one seam. To be glued. Otherwise OK

Final Test: Leakage / Relief Valves: The chambers are to be tested separately (one at a time). Through the Topping Up Valve, inflate chamber to approximately 2.00 PSI, soap the (3) valves to detect leakage. Then slowly inflate chamber until pressure relief valve vents. Use leak detector or non detergent soap to detect the opening and the closing. A hissing sound may also denote that the valve has started to open. Record the opening/closing time and pressure. The opening pressure shall be between 3.3 – 3.5 PSI and the closing pressure shall not be less than 3.00 PSI, in order for the test to be acceptable. After 24 hours, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period (see sheet 2).

The corrected pressure reading shall not be less than 1.60 PSI in order for the Test to be acceptable.

Upon completion of the Final Test, inflate both chambers equally to approx. 2.00 PSI and perform Dimensional Verification below. Perform additional inspection of the tapes and girt assembly.

Pressure Relief Valve Test	PRV Serial Numbers	Opening		Closing		Pass / Fail
		Time ON	Pressure	Time	Close	
Chamber # 1	33202	9:10	3.49	9:15	3.11	Pass
Chamber # 2 (Main Seam)	33195	11:25	3.50	11:30	3.22	Pass

Chambers	Design (closing) Pressure as per above	24 Hour Leakage Test								Pass / Fail
		Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.	Final Read'g		
# 1	3.11 PSI	9:15	9:15	2.71 PSI	22° 22°	30.30 29.91	—	2.57 PSI	Pass	Pass
Re-Test							-0.142			
# 2 (Main Seam)	3.22 PSI	11:30	11:30	2.16 PSI	22° 22°	29.79 30.05	+0.147	2.30 PSI	Pass	Pass
Re-Test										

Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail
3.5	± 0.100 *	3.5	Pass	47.0	± 0.5	46.78	Pass	24.75	± 0.5	25	Pass
7.3	± 0.100 *	7.25	Pass					31.0	± 0.5	31 3/8	Pass

* = IAW QSI 018, rev. A dated 03-05-29

4

Submission of Adhesive Testing:

	Subm. Date / am-pm	Pass/Fail							
Peel	24 hour	Dec 2/04	Failed	Dec 9/04	Pass	Dec 13/04	Pass	Dec 22/04	Pass
	7 day	Dec 2/04	Failed	Dec 9/04	Pass	Dec 13/04	Pass	Dec 22/04	Pass
Shear	24 hour	Dec 2/04	Failed	Dec 9/04	Pass	Dec 13/04	Pass	Dec 22/04	Pass
	7 day	Dec 2/04	Failed	Dec 9/04	Pass	Dec 13/04	Pass	Dec 22/04	Pass

Note! Bag # 4 all work not taken account to be included

#8

Description: Float Bag Assembly

-Items are Manufactured IAW Process Control Specification No. 001, 002, 003, 004, 005, 006, and are to be 100% inspected I.A.W. P.I.P. 001

W/O: 3664 TSS P/N: 8927 Qty.: 1 Customer P/N: D3218-041 Dwg. No.: D3218 Rev.: A Date: _____

Cutting IAW PCS 003		Marking IAW PCS 004		Bonding IAW PCS 002		Silkscreen	
Operator No.	Date	Operator No.	Date	Operator No.	Date	Operator No.	Date
<u>85</u>	<u>Nov. 30/04</u>	<u>73</u>	<u>Dec 01/04</u>			<u>73</u>	<u>Nov. 15/04</u>
				(Documented below)		<u>73</u>	<u>Dec 15/04</u>

* Note: PCS 006, there shall be a total of 2 samples submitted for the Testing of the Adhesive (Peel and Shear Test), at start and end of every production day, record on sheet 3/3

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
1- a) Attach Panel A (uneven edge) to larger edge of Panel B, centered on a 2" inner tape (butt joint) $\pm 1/8"$ b) Attach (6) Valve Flanges on Panel A: 2-Relief, 2-Inlet & 2- Topping Up c) Attach (6) Doublers on above Flanges	<u>37 8 dec. 04</u> <u>4/11/04</u> <u>8/12/04</u>	<u>7104-26</u> <u>Bonding</u> <u>26</u>	<u>1</u> <u>680</u> <u>6</u>	<u>-</u> <u>-6</u> <u>-</u>	<u>-</u> <u>-</u> <u>-</u>	<u>1</u> <u>680</u> <u>6</u>	<u>TS SP</u> <u>11</u> <u>11</u>	<u>Dec 8/04</u> <u>Dec 7/04</u> <u>Dec 7/04</u>
2- a) Attach Panel C to Straight edge of Panel A, centered on a 2" inner Tape (butt joint) $\pm 1/8"$	<u>37</u> <u>8 dec. 04</u>	<u>7104-26</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	<u>TS SP</u> <u>11</u>	<u>Dec 8/04</u>
3- a) Att. Panel D to Panel B (shorter edge) with 2" inner Tape	<u>37</u> <u>8 dec. 04</u>	<u>7104-26</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	<u>TS SP</u> <u>11</u>	<u>Dec 8/04</u>
4- a) Baffle Ass'y. with 2" Tape $\pm 1/8"$	<u>117</u> <u>9 dec 04</u>	<u>Bonding</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	<u>TS SP</u> <u>11</u>	<u>Dec 9/04</u>
5- a) Attach Baffle Ass'y. to Bag (in 3 stages, minimum)	<u>117</u> <u>10 dec 04</u>	<u>Bonding</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	<u>TS SP</u> <u>11</u>	<u>Dec 10/04</u>
6- a) Perform Baffle Test on Chamber # 1 after a 3 day Cure Time	<u>12</u> <u>13 dec 2004</u>	<u>Testing</u> (see sheet 2)	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	<u>4</u>	<u>Dec 13/04</u>
7- a) Closure of 1" Main Seam (overlap) $\pm 1/8"$ b) Attach ID Patch (ref. CAR 04-003)	<u>117</u> <u>15 dec 04</u> <u>37 3 jan. 04</u>	<u>Bonding</u> <u>7104-27</u>	<u>1</u> <u>1</u>	<u>-</u> <u>-</u>	<u>-</u> <u>-</u>	<u>1</u> <u>1</u>	<u>TS SP</u> <u>11</u>	<u>Dec 16/04</u> <u>Jan 5/05</u>
8- a) Perform Baffle Test on Chamber # 2 after a 3 day Cure Time	<u>12</u> <u>22/dec 04</u>	<u>Testing</u> (see sheet 2)	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	<u>4</u>	<u>Dec 22/04</u>
9- a) Attach 1" wide Finishing Tape on all Butt Joints & Main Seam, Centered $\pm 1/8"$ b) Att. Inspected Girt Ass'y. (Form 193-8927, Girt) to Bag c) Attach 5" split patch on each end (x 4)	<u>37</u> <u>4 jan. 04</u> <u>37 4 jan. 04</u> <u>37 4 jan. 04</u>	<u>Bonding</u> <u>7104-27</u>	<u>1</u> <u>1</u>	<u>-</u> <u>-</u>	<u>-</u> <u>-</u>	<u>1</u> <u>1</u>	<u>TS SP</u> <u>11</u>	<u>Jan 5/05</u> <u>Jan 5/05</u> <u>Jan 5/05</u>

TULMAR #8

Product Inspection Form # 193-8927(Tube & Final)

Rev. D Sheet 2/3

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
10- a) Final Test b) Inspector to Stamp on ID Patch: Serial No.: B 21829-12 & Inspection Stamp beside the S/N	12 Jan 7/05 12 Jan 7/05	Testing (see sheet 3)	1	—	—	1	SS A SS 4	Jan 7 2005 Jan 7 2005

Upon completion of the (final) leakage test, the ID Patch shall be stamped with $5/16^{\text{th}}$ high lettering and black ink: serial number (7 digits), provided by DART (refer to W/O). Verify the integrity of the Valves (Threads/gaskets).

Test Conditions – All tests shall be performed in the following conditions:

a) Atmospheric pressure between 28 to 32 inches of mercury (94.8 kPa to 108.4 kPa) b) Temperature shall be $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ c) Relative humidity shall be 80 % or less

Baffle Test:

Over Pressure: Using socket tool and torque wrench s/n 0801300327, tight all (3) Valves to 40 inch pound, the JIC adaptor s/n 44537 between 15 to 20 foot pounds. Block the Relief valve with flagged pin. Inflate Chamber to 4.36 PSI (30 kPa) with clean dry air source. Using leak detector or non detergent soap, check all the valves and seams to detect leakage.

Leakage shall be cause for rejection (soap during testing period). Fuzz is not considered a failure. After 5 minutes, there shall be no evidence of distortion or damage to the seams.

Inflation Test: Lower Chamber to 3.00 psi, re-adjust after 45 minutes. After 1 hour, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period. The corrected pressure reading shall not be less than 2.94PSI in order for the Test to be acceptable.

- 0.054 PSI for each 1°C of temperature increase
- + 0.054 PSI for each 1°C of temperature decrease
- + 0.049 PSI for each 0.1 inch of barometric increase
- 0.049 PSI for each 0.1 inch of barometric decrease

Chambers	Pressure	5 Min. Over P. & Soap Test	45 Minute Stabilizing Period						1 Hour Test						
			Pass / Fail	Design Pressure	Time On	Time Off	Design Pressure	Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.	Final Read'g	Pass / Fail
DEC 13/04															
# 1 (see note 1)	4.36 PSI	Pass		3.00 PSI	12:15	1:00	3.00 PSI	1:00	2:00	2.99 PSI	23°	23°	—	2.99 PSI	Pass
Re-Test															
DEC 14/04 Main Seam)	4.36 PSI	Pass		3.00 PSI	1:35	2:20	3.00 PSI	2:20	3:20	3.00 PSI	23°	23°	—	2.97 PSI	Pass
Re-Test															

Note 1: Chamber # 1 requires Dart Aerospace Approval Signature: Chris Provost Date: 09.12.15

Observations: OK

Final Test: Leakage / Relief Valves: The chambers are to be tested separately (one at a time). Through the Topping Up Valve, inflate chamber to approximately 2.00 PSI, soap the (3) valves to detect leakage. Then slowly inflate chamber until pressure relief valve vents. Use leak detector or non detergent soap to detect the opening and the closing. A hissing sound may also denote that the valve has started to open. Record the opening/closing time and pressure. The opening pressure shall be between 3.3 – 3.5 PSI and the closing pressure shall not be less than 3.00 PSI, in order for the test to be acceptable. After 24 hours, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period (see sheet 2).

The corrected pressure reading shall not be less than 1.60 PSI in order for the Test to be acceptable.

Upon completion of the Final Test, inflate both chambers equally to approx. 2.00 PSI and perform Dimensional Verification below. Perform additional inspection of the tapes and girt assembly.

Pressure Relief Valve Test	PRV Serial Numbers	Opening		Closing		Pass / Fail
		Time ON	Pressure	Time	Close	
Chamber # 1	33185	12:15	3.50 PSI	12:20	3.27 PSI	Pass
Chamber # 2 (Main Seam)		12:25	3.50 PSI	12:30	3.25 PSI	Pass

Jan 6/05 Chambers	Design (closing) Pressure as per above	24 Hour Leakage Test								Heavy 11%	
		Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.	Final Read'g	Pass / Fail		
# 1	3.27 PSI	12:20	12:20	2.82 PSI	23°	22°	30.15	29.71	+0.054 -0.215	2.65 PSI	Pass
Re-Test											
# 2 (Main Seam)	3.25 PSI	12:30	12:30	2.29 PSI	22	23	29.69	30.04	+0.054 +0.1715	2.40 PSI	Pass
Re-Test											

Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail
3.5	± 0.100 *	3.4	Pass	47.0	± 0.5	46.5/8	Pass	24.75	± 0.5	25 1/8	Pass
7.3	± 0.100 *	7.2	Pass					31.0	± 0.5	31 3/8	Pass

* = IAW QSI 018, rev. A dated 03-05-29

Submission of Adhesive Testing:

	Subm. Date / am-pm	Pass/Fail							
Peel	24 hour	Dec 2/04	Failed	Dec 8/04	Pass	Dec 10/04	Pass	Jan 4/05	Pass
	7 day	Dec 2/04	Failed	Dec 8/04	Pass	Dec 10/04	Pass	Jan 4/05	Pass
Shear	24 hour	Dec 2/04	Failed	Dec 8/04	Pass	Dec 10/04	Pass	Jan 4/05	Pass
	7 day	Dec 2/04	Failed	Dec 8/04	Pass	Dec 10/04	Pass	Jan 4/05	Pass

Note: Rec #8 new seal main take on material

11

Description: Float Bag Assembly

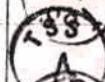
-Items are Manufactured IAW Process Control Specification No. 001, 002, 003, 004, 005, 006, and are to be 100% inspected I.A.W. P.I.P. 001

W/O: 3664TSS P/N: 8927Qty.: 12 Customer P/N: D3218-041Dwg. No.: D3218Rev.: A

Date: _____

Cutting IAW PCS 003		Marking IAW PCS 004		Bonding IAW PCS 002		Silkscreen	
Operator No.	Date	Operator No.	Date	Operator No.	Date	Operator No.	Date
<u>85</u>	<u>Nov. 30/04</u>	<u>73</u>	<u>Dec 01/04</u>			<u>73</u>	<u>Nov. 15/04</u>
				(Documented below)		<u>73</u>	<u>Dec 15/04</u>

* Note: PCS 006, there shall be a total of 2 samples submitted for the Testing of the Adhesive (Peel and Shear Test), at start and end of every production day, record on sheet 3/3

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
1- a) a) Attach Panel A (uneven edge) to larger edge of Panel B, centered on a 2" inner tape (butt joint) $\pm 1/8"$ b) Attach (6) Valve Flanges on Panel A: 2-Relief, 2-Inlet & 2- Topping Up c) Attach (6) Doublers on above Flanges	<u>37 6 dec 04</u>	<u>7104-25-26</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>		<u>Dec 7/04</u>
	<u>5/11/04</u>	<u>Bonding</u>	<u>6</u>	<u>190</u>	<u>-</u>	<u>6</u>		<u>Dec 10/04</u>
2- a) Attach Panel C to Straight edge of Panel A, centered on a 2" inner Tape (butt joint) $\pm 1/8"$	<u>37 7 dec 04</u>	<u>7104-26</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>		<u>Dec 7/04</u>
3- a) Att. Panel D to Panel B (shorter edge) with 2" inner Tape	<u>37 7 dec 04</u>	<u>7104-26</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>		<u>Dec 7/04</u>
4- a) Baffle Ass'y. with 2" Tape $\pm 1/8"$	<u>117 7 dec 04</u>	<u>Bonding</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>		<u>Dec 7/04</u>
5- a) Attach Baffle Ass'y. to Bag (in 3 stages, minimum)	<u>117 9 dec 04</u>	<u>Bonding</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>		<u>Dec 9/04</u>
6- a) Perform Baffle Test on Chamber # 1 after a 3 day Cure Time	<u>12 14 dec 04</u>	<u>Testing</u> (see sheet 2)	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>		<u>Dec 14/04</u>
7- a) Closure of 1" Main Seam (overlap) $\pm 1/8"$ b) Attach ID Patch (ref. CAR 04-003)	<u>117 15 dec 04</u>	<u>Bonding</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>		<u>Dec 16/04</u>
8- a) Perform Baffle Test on Chamber # 2 after a 3 day Cure Time	<u>12 22 dec 2004</u>	<u>Testing</u> (see sheet 2)	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>		<u>Dec 22/04</u>
9- a) Attach 1" wide Finishing Tape on all Butt Joints & Main Seam, Centered $\pm 1/8"$ b) Att. Inspected Girt Ass'y. (Form 193-8927, Girt) to Bag c) Attach 5" split patch on each end (x 4)	<u>37 3 jan. 05</u>	<u>7104-27</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>		<u>Jan 5/05</u>
	<u>37 3 jan. 05</u>	<u>Bonding</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>		<u>Jan 5/05</u>
	<u>37 4 jan. 05</u>	<u>7104-27</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>		<u>Jan 5/05</u>

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
10- a) Final Test b) Inspector to Stamp on ID Patch: - Serial No.: B 21829-10 & Inspection Stamp beside the S/N	12 Jan 7/05 12 Jan 10/05	Testing (see sheet 3)	1	—	—	1	4	Jan 7/05 Jan 10/05

Upon completion of the (final) leakage test, the ID Patch shall be stamped with 5/16" high lettering and black ink: serial number (7 digits), provided by DART (refer to W/O). * Verify the integrity of the Valves (Threads/gaskets).

Test Conditions – All tests shall be performed in the following conditions:

a) Atmospheric pressure between 28 to 32 inches of mercury (94.8 kPa to 108.4 kPa) b) Temperature shall be $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ c) Relative humidity shall be 80 % or less

Baffle Test:

Over Pressure: Using socket tool and torque wrench s/n 0801300327, tight all (3) Valves to 40 inch pound, the JIC adaptor s/n 44537 between 15 to 20 foot pounds. Block the Relief valve with flagged pin. Inflate Chamber to 4.36 PSI (30 kPa) with clean dry air source. Using leak detector or non detergent soap, check all the valves and seams to detect leakage.

Leakage shall be cause for rejection (soap during testing period). Fuzz is not considered a failure. After 5 minutes, there shall be no evidence of distortion or damage to the seams.

Inflation Test: Lower Chamber to 3.00 psi, re-adjust after 45 minutes. After 1 hour, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period. The corrected pressure reading shall not be less than 2.94PSI in order for the Test to be acceptable.

- 0.054 PSI for each 1°C of temperature increase
- + 0.054 PSI for each 1°C of temperature decrease
- + 0.049 PSI for each 0.1 inch of barometric increase
- 0.049 PSI for each 0.1 inch of barometric decrease

Chambers	Pressure	5 Min. Over P. & Soap Test	45 Minute Stabilizing Period			1 Hour Test						Final Read'g	Pass / Fail			
			Pass / Fail	Design Pressure	Time On	Time Off	Design Pressure	Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End				
# 1 (see note 1)	4.36 PSI	Pass		3.00 PSI	10:40	11:20	3.00 PSI	11:20	12:20	3.00 PSI	23°	23°	29.92	29.91	-0.004 2.99 PSI	Pass
Re-Test																
Sec 2 2/04 # 2 (Main Seam)	4.36 PSI	Pass		3.00 PSI	1:30	2:15	3.00 PSI	2:15	3:15	3.00 PSI	23°	23°	29.21	29.23	-0.029 2.97 PSI	Pass
Re-Test																

Note 1: Chamber # 1 requires Dart Aerospace Approval Signature: Chris Phaneuf Date: 09.12.15

Observations: OK

Final Test: Leakage / Relief Valves: The chambers are to be tested separately (one at a time). Through the Topping Up Valve, inflate chamber to approximately 2.00 PSI, soap the (3) valves to detect leakage. Then slowly inflate chamber until pressure relief valve vents. Use leak detector or non detergent soap to detect the opening and the closing. A hissing sound may also denote that the valve has started to open. Record the opening/closing time and pressure. The opening pressure shall be between 3.3 – 3.5 PSI and the closing pressure shall not be less than 3.00 PSI, in order for the test to be acceptable. After 24 hours, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period (see sheet 2).

The corrected pressure reading shall not be less than 1.60 PSI in order for the Test to be acceptable.

Upon completion of the Final Test, inflate both chambers equally to approx. 2.00 PSI and perform Dimensional Verification below. Perform additional inspection of the tapes and girt assembly.

OK (05.01.13)

Pressure Relief Valve Test	PRV Serial Numbers	Opening		Closing		Pass / Fail
		Time ON	Pressure	Time	Close	
Chamber # 1	33191	9:15	3.20 PSI	9:20	3.01 PSI	Pass
Chamber # 2 (Main Seam)	33194	11:30	3.50 PSI	11:35	3.13 PSI	Pass

Chambers	Design (closing) Pressure as per above	24 Hour Leakage Test							Pass / Fail	
		Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.	Final Read'g		
Chamber # 1	3.01 PSI	9:20	9:20	2.64 PSI	22°	22°	30:20	29.91	-0.142	2.50 PSI Pass
Re-Test										
Chamber # 2 (Main Seam)	3.13 PSI	11:35	11:35	2.35 PSI	22°	22°	29.79	30.05	+0.147	2.49 PSI Pass
Re-Test										

Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail
3.5	± 0.100 *	3.4	Pass	47.0	± 0.5	46.50	Pass	24.75	± 0.5	25 1/16	Pass
7.3	± 0.100 *	7.4	Pass					31.0	± 0.5	31 1/8	Pass

* = IAW QSI 018, rev. A dated 03-05-29

SS
A

Submission of Adhesive Testing:

	Subm. Date / am-pm	Pass/Fail						
Peel	24 hour	Dec 7/04	Pass	Dec 15/04	Pass			
	7 day	Dec 7/04	Pass	Dec 15/04	Pass			
Shear	24 hour	Dec 7/04	Pass	Dec 15/04	Pass			
	7 day	Dec 7/04	Pass	Dec 15/04	Pass			